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P.O. BOX 700640
SAN JOSE, CA 95170

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SERRAO, RANODHI N	

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/687,189
Filing Date: October 16, 2003
Appellant(s): SUBRAMANIYAN, NAGARAJAN

Joseph A. Nguyen
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 23 July 2007 appealing from the Office action mailed 27 March 2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,247,060	Boucher et al.	06-2001
2002/0062333	Anand et al.	05-2002

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boucher et al. (6,247,060) and Anand et al. (2002/0062333).

As per claim 1, Boucher et al. teaches a method for establishing a connection between a first device and a second device, said first device comprising a first protocol driver, a first application, a first socket layer disposed between said first protocol driver and said first application, and a first NIC driver, said second device comprising a second NIC driver (see Boucher et al., col. 20, lines 10-35), said method comprising: providing a first filter between said first socket layer and said first protocol driver (see Boucher et al., col. 53, lines 19-30), said first filter being external to said first NIC driver and first

NIC hardware that is driven by said first NIC driver (see Boucher et al., col. 53, lines 31-47); providing a first offload hardware in said first device (see Boucher et al., col. 24, lines 52-58); providing a second filter in said second device (see Boucher et al., col. 14, line 57-col. 15, line 6); receiving, using said first filter, a request from said first application through said first socket layer (see Boucher et al., col. 53, lines 35-54). But fails to teach examining, using said first filter, a transport handle in said request to determine whether said connection is an offload connection; processing said request to produce a packet set, said processing being performed by said first offload hardware if said connection is an offload connection, said processing being performed by said first protocol driver if said connection is not said offload connection, said packet set including one or more ordered packets; sending, using said first NIC driver and said first NIC hardware, said packet set to said second device; determining, using said second NIC driver, whether said packet set contains an offload transport handle; and passing said packet set to said second filter if said packet set contains said offload transport handle. However, Anand et al. teaches examining, using a process in the NIC, a transport handle in said request to determine whether said connection is an offload connection (see Anand et al., ¶ 56-58); processing said request to produce a packet set, said processing being performed by said first offload hardware if said connection is an offload connection (see Anand et al., ¶ 41), said processing being performed by said first protocol driver if said connection is not said offload connection, said packet set including one or more ordered packets (see Anand et al., ¶ 43); sending, using said first NIC driver and said first NIC hardware, said packet set to said second device (see

Anand et al., ¶ 53); determining, using said second NIC driver, whether said packet set contains an offload transport handle (see Anand et al., ¶ 54); and passing said packet set to said second filter if said packet set contains said offload transport handle (see Anand et al., ¶ 58). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Boucher et al. to examining, a transport handle in said request to determine whether said connection is an offload connection; processing said request to produce a packet set, said processing being performed by said first offload hardware if said connection is an offload connection, said processing being performed by said first protocol driver if said connection is not said offload connection, said packet set including one or more ordered packets; sending, using said first NIC driver and said first NIC hardware, said packet set to said second device; determining, using said second NIC driver, whether said packet set contains an offload transport handle; and passing said packet set to said second filter if said packet set contains said offload transport handle in order to free up host processor resources and increasing the overall efficiency of the computer system (see Anand et al., ¶ 3).

As per claim 2, Boucher and Anand teach a method, wherein said second filter is provided between a second socket layer and a second protocol driver in said second device (see Boucher et al., col. 37, lines 6-46).

As per claims 3, 4, 9-13, 22, and 23, the above-mentioned motivation of claim 1 applies fully in order to combine Boucher et al. and Anand et al.

As per claim 3, Boucher and Anand teach a method, wherein said first offload hardware is implemented in said first NIC hardware (see Anand et al., ¶ 14).

As per claim 4, Boucher and Anand teach a method, wherein said processing is performed by said first protocol driver if said connection is an IPsec connection (see Anand et al., ¶ 63).

As per claim 5, Boucher and Anand teach a method, wherein said transport handle pertains to at least one of hardware capabilities of said first device and a routing table (see Boucher et al., col. 44, lines 28-63).

As per claim 6, Boucher and Anand teach a method, wherein at least one of said first protocol driver and said second protocol is configured for processing a transport protocol (see Boucher et al., col. 14, lines 4-26).

As per claim 7, Boucher and Anand teach a method, wherein at least one of said first protocol driver and said second protocol is configured for processing TCP (see Boucher et al., col. 14, line 57-col. 15, line 6).

As per claim 8, Boucher and Anand teach a method, at least one of said first protocol driver and said second protocol is configured for processing IP (see Boucher et al., col. 14, line 57-col. 15, line 6).

As per claim 9, Boucher and Anand teach a method, further comprising providing a second offload hardware in said second device, said second offload hardware configured for re-assembling said packet set into a data stream (see Anad et al., ¶ 47).

As per claim 10, Boucher and Anand teach a method, wherein said determining includes detecting at least one of a connection establishment handshake and a handshake termination between said first device and said second device (see Anad et al., ¶ 49).

As per claim 11, Boucher and Anand teach a method, wherein said determining includes using said second filter (see Anand et al., ¶ 50).

As per claim 12, Boucher and Anand teach a method, wherein said first protocol driver is supplied with an operating system of said first device and without being modified (see Anand et al., ¶ 6).

As per claim 13, Boucher et al. teaches an apparatus comprising: an application; a socket layer (see Boucher et al., col. 37, lines 7-46); a filter configured to receive a request from said application through said socket layer; wherein said filter is disposed between said socket layer and said protocol driver and external to said NIC driver and said NIC hardware (see Boucher et al., col. 52, lines 50-67). But fails to teach examine a transport handle in said request for determining whether a connection pertaining to said request is an offload connection; a protocol driver configured to process said request into a packet set if said connection is not said offload connection, said packet set including one or more ordered packets; an offload hardware configured to process said request into said packet set if said connection is said offload connection; a NIC driver configured to transmit said packet set; and NIC hardware driven by said NIC driver. However, Anand et al. teaches examine a transport handle in said request for determining whether a connection pertaining to said request is an offload connection (see Anand et al., ¶ 56-58); a protocol driver configured to process said request into a packet set if said connection is not said offload connection, said packet set including one or more ordered packets (see Anand et al., ¶ 16); an offload hardware configured to process said request into said packet set if said connection is said offload connection

(see Anand et al., ¶ 57); a NIC driver configured to transmit said packet set; and NIC hardware driven by said NIC driver (see Anand et al., ¶ 38). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Boucher et al. to examine a transport handle in said request for determining whether a connection pertaining to said request is an offload connection; a protocol driver configured to process said request into a packet set if said connection is not said offload connection, said packet set including one or more ordered packets; an offload hardware configured to process said request into said packet set if said connection is said offload connection; a NIC driver configured to transmit said packet set; and NIC hardware driven by said NIC driver in order to free up host processor resources and increasing the overall efficiency of the computer system (see Anand et al., ¶ 3).

As per claim 22, Boucher and Anand teach an apparatus, wherein said NIC driver is further configured to determine whether an incoming packet set contains an offload transport handle and to, if said incoming packet set contains said offload transport handle, pass said incoming packet set to said filter (see Anand et al., ¶ 58).

As per claim 23, Boucher and Anand teach an apparatus, wherein said filter is further configured to determine whether an incoming packet set contains an offload transport handle (see Anand et al., ¶ 58).

Claims 14-21 and 24 have similar limitations as to claims 1-12, 22, and 23; therefore they are being rejected under the same rationale.

(10) Response to Argument

Applicant's arguments related to limitations of claims 1 and 13:

(I) Applicant stated that Boucher does not teach the relation between a filter and a socket layer. In the arrangement taught by Boucher, the TDI filter driver and upper interface 380 may be a combined filter-socket component, without a filter being provided between a socket layer and protocol layer.

The Examiner respectfully disagrees. In col. 44, line 64-col. 45, line 10, Boucher states, "In FreeBSD, route changes are sent down to the kernel from user-space applications via a special route socket. This code is found in the FreeBSD file, rtsock.c. Obviously this will not work for our ATCP driver. Instead the filter driver portion of our driver will intercept route changes destined for the Microsoft TCP driver and will apply those modifications to our own route table via the rtrequest routine described above." It is clear that Boucher teaches a relation between a filter and a socket layer. As pointed out by Applicant, Boucher teaches a filter driver at the top of the TCP/IP protocol stack (col. 32, lines 25-33). And since the filter intercepts route socket information from the socket layer, destined for the TCP driver, it is obvious that the filter is provided between a socket layer and a protocol layer.

(II) Applicant argued that Boucher does not teach a transport handle, i.e., a unique identifier or pointer used to access an object. And that Boucher does not teach examining a transport handle in a request using a filter.

The Examiner points out that Boucher teaches using a filter (col. 53, lines 35-54) and Anand teaches examining a transport handle in a request using a process in the

NIC 100 (¶ 56-58). In ¶ 56 Anand states, "This data field can simply be in the form of a control flag or flags, which merely indicates that a particular function be performed (such as a checksum), or the information can be in the form of **a pointer** to a data structure that further defines how a task should be carried out." Emphasis added. Therefore Boucher and Anand teach the claimed limitations.

(III) Applicant remarked that Anand teaches that the NIC hardware may process the packet but not the request from file sending application. Further, Anand does not teach that the packet includes one or more ordered packets.

In ¶ 53, Anand states, "The driver 116 then controls/manipulates the hardware on the NIC so that it will perform whatever functional tasks have been requested via the contents of the packet extension." It is evident then that requests are contained in packets, and the NIC hardware may process the request. In ¶ 75-78 Anand discloses an offload buffer which is a region of memory used to temporarily hold ordered packets while it is being moved from one place to another as is well known to one of ordinary skill in the art.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Ranodhi N. Serrao

Examiner

Art Unit 2141

RNS

R.N.S

9/25/2007

WILLIAM VAUGHN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100